LOCAL AIR PROGRAMS

In addition to the Department's efforts, the Jefferson County Department of Health (JCDH) and the City of Huntsville operate local programs that provide implementation and oversight of air quality programs within their jurisdictions. The staffs associated with these local programs review permit applications, issue permits, perform inspections, initiate enforcement actions, and conduct air monitoring activities to document and protect air quality.

The Jefferson County Department of Health operates a series of air monitors that collect air quality data in Jefferson County. JCDH provides real-time air quality data, including current ozone concentrations, which allows the public to make informed decisions about their daily activities.

JCDH staff also observe and evaluate emission testing at facilities to document air emissions and determine compliance with air permits. Emission tests involve the collection of air samples from industry stacks/vents. The air samples can then be analyzed to determine the type(s) and concentration(s) of compounds that are being emitted.

Additionally, JCDH leases a 2003 Honda Civic Hybrid Electric Vehicle (HEV) to demonstrate and promote better air quality for on-road mobile sources. The car is a gasoline-electric hybrid that needs no "plug in," gets up to 51 mpg, and has a cruising range of 650 miles. The leasing is made possible through the Alabama Partners for Clean Air.

Huntsville's Division of Natural Resources established an Industrial Air Pollution Control Achievement Awards Program in 1997 to encourage additional reductions in air emissions within the City of Huntsville. The awards program recognizes industrial, institutional and commercial facilities that go beyond the regulatory requirements to reduce air emissions. The Division also promotes ozone awareness by posting a "Clean Air Tip of the Week" on the local government channel during the peak ozone season.

For more information contact:

Air Division
Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7861
www.adem.state.al.us

ADEM

COMMUTESMART

Vanpooling is another resource to reduce emissions generated by on-road mobile sources. Instead of individuals driving separate cars to and from work, vanpooling allows numerous individuals to share a common van to commute to work. This cost-effective alternative to the daily commute reduces gasoline consumption, reduces automobile air emissions, and allows individuals to share a ride with others in a friendly environment. ADEM has several employees that utilize vanpooling to commute from Birmingham to Montgomery.

Key Dates

Ozone Monitoring	March 1 - October 31
Ozone Forecasting	April 15 - September 30
Burn Ban	May 1 - September 30
Low Sulfur/Low RVP Gas	June 1 - September 15

Web Sites

Air Quality Index
www.epa.gov/airnow/
Ozone Forecasts
www.adem.state.al.us/AirDivision/Ozone/OzoneForecast.htm
Jefferson County Department of Health
www.jcdh.org
City of Huntsville
http://www.ci.huntsville.al.us/NatRes/index.html
Alabama Partners for Clean Air
www.alabamacleanair.com
CommuteSmart
www.commutesmartrideshare.com

Data Aquisition

National Air Quality Database
www.epa.gov/air/data/index.html
National Ozone Mapping Program
www.epa.gov/airnow/

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Safeguarding Alabama's Air Quality

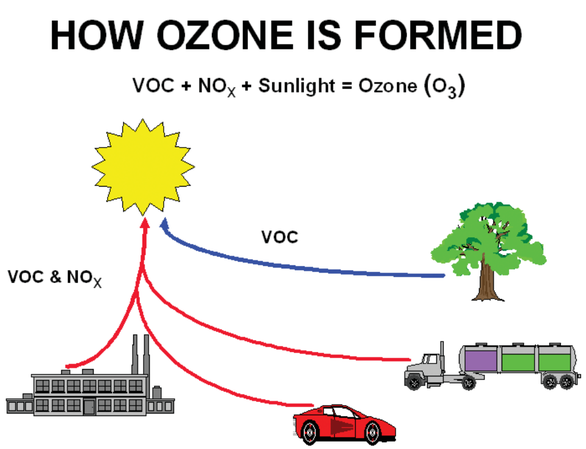
The Alabama Department of Environmental Management (ADEM) utilizes a wide range of monitoring equipment and technology to perform ambient air monitoring and to document air quality in Alabama. Air quality throughout Alabama and across America is monitored, assessed and compared to the National Ambient Air Quality Standards (NAAQS) to determine the quality of our air resources. The NAAQS are levels of air quality, with an adequate margin of safety, that are established to protect human health and the environment. The U.S. Environmental Protection Agency (EPA) has established NAAQS for six criteria pollutants, including ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter, and lead.

ADEM's monitoring activities indicate that all 67 of Alabama's counties comply with the current NAAQS for five of the six criteria pollutants, with those being sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter, and lead. Additionally, 65 of Alabama's counties comply with the NAAQS for ozone, with only Jefferson County and Shelby County not meeting the standard.

In order to maintain the air quality in areas that currently comply with the NAAQS and achieve compliance in Jefferson and Shelby counties, ADEM has implemented a variety of regulatory programs to reduce and monitor the emission of air pollutants. The information in this brochure highlights ADEM's commitment to addressing air emissions and ensuring clean air for all Alabama citizens.

OZONE FORMATION

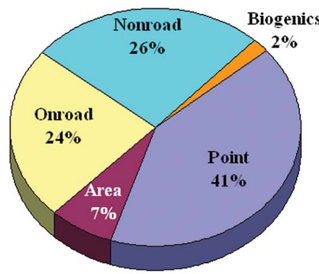
Ozone is a unique chemical that occurs naturally in the earth's stratosphere and provides protection from harmful ultraviolet radiation. However, when ozone is found at ground-level it can cause respiratory and other health-related problems. Several groups of people are particularly sensitive to ozone, including the elderly, children and persons with preexisting respiratory diseases.



Ozone is not emitted directly into the air by factories or industries but is formed by a chemical reaction between nitrogen oxides (NO_X) and volatile organic compounds (VOCs) in the presence of sunlight and heat. Thus, elevated ozone concentrations and ozone related problems generally occur during the summer months.

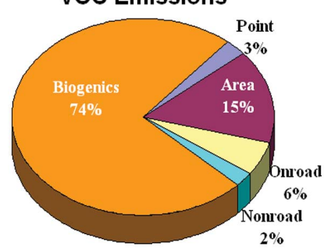
Nitrogen oxides are emitted from motor vehicles, power plants, and other combustion sources, while VOCs are emitted from biogenic sources (trees/plants), motor vehicles, refineries, chemical plants, and other industrial sources. The charts on this page outline the sources of NO_X and VOCs. In order to control the formation of ground-level ozone, the Department has adopted regulatory requirements to reduce emissions of NO_X and VOCs.

NO_X Emissions



Point Sources -Large Stationary Facility (Power Plant/Paper Mill)
Area Sources - Small Stationary Facility (Gas Station/Bakery)
On-Road Sources - Road/Highway Vehicles (Cars/Trucks)
Non-Road Sources - Off Road Vehicles (Boat/Plane/Lawnmower)
Biogenic Sources - Natural Vegetation (Plants/Trees/Shrubs)

VOC Emissions



OZONE AIR QUALITY STANDARD

The national ambient air quality standard for ozone is currently referred to as either the 1-hour standard or the 8-hour standard. The 1-hour standard (125 ppb) was adopted by EPA in the 1970s but has been replaced by the more stringent 8-hour standard (85 ppb). The 8-hour standard was adopted by EPA in 1997 and is currently being implemented. Since the 8-hour standard has not been fully implemented, areas have not been formally designated as attainment/nonattainment under this standard. Areas that are currently designated as nonattainment, i.e. not meeting the ozone standard, are designated as such under the 1-hour standard.

The1-hour ozone standard is met when three or fewer exceedance days are recorded over a three-year period at a given monitoring site. As outlined in the table below, the air monitor at Helena recorded four days that exceeded the 1-hour ozone standard during the last three years. Thus, the Jefferson County and Shelby County area is designated as nonattainment for ozone.

Days/Year that Birmingham Area Exceeded 1-Hour Ozone Standard

Monitor	2000	2001	2002	2000-2002 Total
Helena	2	1	1	4
Hoover	1	0	0	1
McAdory	0	1	0	1
Fairfield	0	0	0	0
Tarrant	1	1	0	2
Pinson	1	0	0	1
Corner	0	0	0	0
Providence	0	0	0	0
N. Birmingham	1	0	0	1
Leeds	Established in 2001	0	1	1

The 8-hour ozone standard, which is currently being implemented, is expected to better protect against the human health effects of ozone. An area would meet the 8-hour ozone standard when the average of the fourth highest ozone readings from each of the most recent three years is less than 85 ppb. This table illustrates the average of the fourth highest ozone readings from the past three years for all ozone monitors in Alabama.

8-Hour Ozone Averages

Monitor	*County*	*2000-2002*
Ashland	Clay	82
Bay Road	Mobile	81
Chickasaw	Mobile	80
Fairhope	Baldwin	82
Dewberry Trail	Elmore	80
Sumter	Sumter	76
Montgomery	Montgomery	81
Sipsey	Lawrence	78
Huntsville	Madison	82
Decatur	Morgan	**85**
Tuscaloosa	Tuscaloosa	Established 2001
Southside	Etowah	Established 2002
Helena	Shelby	**92**
Fairfield	Jefferson	82
McAdory	Jefferson	**86**
Hoover	Jefferson	**88**
Pinson	Jefferson	82
Tarrant	Jefferson	82
Corner	Jefferson	83
Providence	Jefferson	**87**
N. Birmingham	Jefferson	82
Leeds	Jefferson	Established 2001
Muscle Shoals	Colbert	Established 2003

AIR QUALITY MONITORING

The Department's Ambient Air Quality Monitoring Program utilizes air monitors to document ambient air quality for criteria pollutants throughout Alabama. The efforts of this program include planning the locations for the network of air monitors, site procurement, installation of shelters/equipment, operation/maintenance of air monitor equipment, analysis of data, and reporting of data.

The program operates 58 air monitors at 31 locations throughout Alabama. These air monitors collect ambient air quality data that allows the Department to scientifically document air concentrations for the six criteria pollutants and determine compliance with the national ambient air quality standards. ADEM staff routinely evaluate the monitor network, add new monitors, and visit all monitors on a regular basis to perform calibration and maintenance activities.

As part of this program, the Department operates 14 monitors to measure ozone at various Alabama locations. Additionally, the Jefferson County Department of Health operates nine ozone monitors within Jefferson County and the City of Huntsville operates one. ADEM uses the ozone data when issuing ozone forecasts to large municipal areas during ozone season. ADEM also participates in the national ozone mapping program, an internet-based program providing the public with current ozone levels and health related messages during the ozone season.

Ozone Monitoring Map

Since critical regulatory decisions are based upon the data obtained from the ambient air quality monitors, the Department has implemented quality control measures and quality assurance reviews to ensure that high quality data is reported. The Department has established a Quality Assurance Project Plan for each monitoring program and a Standard Operating Procedure for each brand/model of instrument that is utilized. Both of these procedures have been reviewed and approved by EPA.

OZONE FORECASTS AND AIR QUALITY INDEX

ADEM currently provides daily ozone forecasts for the cities of Birmingham, Mobile and Huntsville during the months of April through September, when ozone formation is most likely. The forecasts are prepared and issued to the public each day by ADEM meteorologists and are based upon predicted weather conditions, ozone forecast models and observed ozone trends. The presence of certain weather systems can produce low relative humidity, light to calm northerly winds, and clear skies, which are the common conditions on Ozone Alert days.

The purpose of the ozone forecasts is to declare "Ozone Alerts" on days when ozone concentrations could exceed the NAAQS. The ozone forecasts allow citizens to adjust their daily routines to limit their outdoor activities on Ozone Alert days and also take voluntary actions to assist in the prevention of ozone formation.

Everyday Tips

- Car pool, use public transportation, bike, or walk whenever possible.
- Keep automobile tires properly inflated.
- Keep car, boat, and other engines tuned according to manufacturer's specifications.

Ozone Alert Day Tips

- Conserve electricity and set your air conditioner's thermostat at a higher temperature.
- Refuel cars and trucks after dusk.
- Combine errands and reduce trips.
- Defer use of gasoline powered lawn/garden equipment

The daily ozone forecasts are based on the Air Quality Index, which was developed by EPA and consists of color-coded categories that correspond to specific ozone concentrations and recommended actions for the general public. The color-coded categories allow citizens to easily recognize when unhealthy ozone levels are predicted.

Ozone Forecast Categories

Forecast Color Code	8-Hour Ozone (ppb)	AQI	Forecast Air Quality
GREEN	0 - 64	0 - 50	Good
YELLOW	65 - 84	51 - 100	Moderate
ORANGE	85 - 104	101 - 150	OZONE ALERT Unhealthy for sensitive groups
RED	105 - 124	151 - 200	OZONE ALERT Unhealthy
PURPLE	125 +	201 +	OZONE ALERT Very Unhealthy

ADEM PROGRAMS TO ACHIEVE AND MAINTAIN THE NAAQS

The Department has implemented numerous regulatory programs to achieve the ozone NAAQS in Jefferson and Shelby counties and allow the remaining Alabama counties to continue to meet the NAAQS for all criteria pollutants. The Department employs a professional staff of scientists, meteorologists, and engineers who implement and oversee these regulatory programs. These regulatory programs seek to reduce the emissions of NO_x and VOCs, precursors to the formation of ground-level ozone, as well as other criteria pollutants.

In 2001 the Department became the first state agency in the southeast to receive EPA approval for its plan to reduce nitrogen oxide emissions from fossil-fuel fired equipment during ozone season. The plan requires emission reductions from large electric generating units, large industrial boilers, large industrial turbines, and cement kilns. Air pollution control equipment has already been installed at some facilities and projections indicate a reduction of approximately 50,000 tons of nitrogen oxides per year by 2007.

The Department also requires the sale and use of cleaner gasoline in Jefferson and Shelby counties during the summer months. ADEM staff conduct sampling activities at bulk terminals, gas stations, and convenience stores to ensure the low sulfur/low vapor pressure gasoline is being utilized. ADEM has also implemented a Leak Detection Audit Program to monitor for leaking vapors when gasoline trucks are being filled at bulk terminals. These programs reduce the emissions of VOCs and assist the area in complying with the ozone NAAQS.

ADEM staff perform emission testing and air toxics monitoring to evaluate and/or quantify air emissions at facilities to ensure that facilities comply with emission limits contained in their air permits. The Department also performs audits of continuous emission monitors to document the monitoring systems are operating properly and are accurately measuring air emissions.

Additionally, the Department prohibits the open burning of specific materials year-round and also institutes a burn ban, which further restricts open burning activities in various counties during the summer months. Open burning can generate both NO_x and VOCs and contribute to the formation of ground-level ozone.